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Pasture Improvement and Alternate Husbandry in Relation to Animal Health

DISCUSSION BY THE CENTRAL VETERINARY SOCIETY*

Sir GEORGE STAPLEDON (Director, Ministry of Agriculture and Fisheries Grassland Improvement Station, Dodwell, Stratford-on-Avon): I am not a livestock man, and I am lamentably ignorant as to the life-history of the organisms that cause animal disease. I have, however, always been a keen watcher of animals—where they go, what they eat and what they do. Quite a bit of organised watching has been done at Aberystwyth, and to one aspect of this I shall refer later.

No, all I can do is to detail some of the consequences arising from the "plough-up" and the turn-over on a grand scale from permanent pasture to leys, and make a few—perhaps cryptic—remarks as to how all this may possibly influence animal health. At the best I shall be able no more than to throw out suggestions for future research, and for that reason I am very proud and happy to be entrusted with this paper, for of this one thing I am absolutely certain, namely, that there is a wide and promising field of investigation open to the intimately associated endeavours of the veterinarian and the agronomist. We must, I think, clearly recognise that our agricultural research has now reached a point where the most fruitful advances will be made not on a subject basis but on a problem basis. As a man all my life keenly interested in grassland, I want to see teams of veterinarians, bio-chemists and agronomists working together as one man on clearly defined practical problems—and there are scores awaiting solution. I am anticipating, and have thus early in my address delivered myself of what is incomparably the most important thing I have to say.

It will be convenient if I deal separately with the conversion of permanent pasture to leys on farm lands proper and with the reclamations of rough grazings on hill sheep farms, and I shall probably devote most time to this latter because there lies my own chief interest.

THE PERMANENT PASTURE—LEY

We have, I think, clearly to realise four things of fundamental importance. The *first*, that the management of stock appropriate to leys is very different from that normally practised on permanent pasture. The *second*, that the soil conditions under leys are, generally speaking, very different from those under permanent pasture. Under the ley there will be no mat and most usually the lime status and phosphate status will have been properly attended to under the ley. The *third*, that the species contributing to the ley will be both qualitatively and quantitatively different from that under permanent pasture. The *fourth*, it is implicit in the idea of the ley that it be periodically ploughed up—the permanent pasture, never: or only (shall we say) at intervals dictated by the period that elapses between one war and the next, a period that is not defined by scientific considerations.

How do these four very different contrasting sets of conditions influence animal health and the incidence of disease? That's what we all want to know, and what we all, I hope, mean to find out—and, mark you this, from the research point of view—but, as I *think*, from no other point of view—the gallant farmers (and the more power to their tractors) are perhaps ploughing up their permanent pastures too fast and too whole-heartedly.

Let us first consider the *periodic plough-up* as such. Surely that must be to the good: thoroughly aerates the soil, and must give a nasty shock to organisms that like to live on sward or mat and in association with animals. The plough-up as such and a run of tillage crops on the face of it, then, must tend to eliminate parasitic organisms—*but have we much precise data?* Parallel with this is the question of the length of ley in relation to specific organisms. Informed flock-masters whose opinion I greatly respect tell me that on certain types of soil it is dangerous at all intensively to graze sheep, or, more explicitly, lambs, on leys for more than two years in succession. Is that true, and where? The agronomist can make excellent two-year grazing leys. The point is, if there are sound veterinary reasons for dictating length of ley, the agronomist must not be left to paddle his own canoe on the basis of coping only with quite different shallows and rapids. I think myself that contamination is a function of two things—size of field and concentration per acre—the larger the paddock the greater the scope for free selection of night camps. The possible significance of this will be apparent when I talk about hill grazings. Sheep need change, and the ley system, which, to be properly conducted means a decent corn acreage in the rotation, gives great scope for change. Note the excellent sheep grazing given by trefoil in the stubble when trefoil is sown with the corn. We have been amazed at the sheep keep we have had from our trefoil stubbles at our station at Colesbourne. The ley system with its corn acreage has given us gratuitous space and change and gratuitous keep!

Now for the most interesting and, as I think, most significant difference—the *stock management on the ley and that on the permanent pasture*. Generally, stock, though perhaps not in great numbers, per unit of area are maintained almost continuously during the grazing season on permanent pasture—permanent pastures are but little completely rested from stock. The concentration in the main is not heavy, but there is almost always some scope for connection between sward-borne parasite and the animal. Good ley management calls for heavy concentrations during periods of "on" grazing, followed by periods of varying length when animals are completely removed. There is another point: the ley leafage lifts up better and presents itself in greater totality to the animal, while the number of tillers or blades of grass on a permanent pasture will be more numerous than on a ley. It follows that organisms getting on to the leaves of a ley sward are more likely to be eaten than those getting on to the leaves of a permanent pasture sward, because during the period of "on" grazing a higher proportion of the ley leaves will be eaten. This will be further accentuated because generally on the permanent pasture there will also be much larger areas of tufted patches, often miniature night camps, that the animals almost completely neglect, than will be the case on the well-managed ley. Against this, the soils under the ley and the general lack of mat may be less favourable to the pathogenic organisms than that under the permanent pasture. Of course, the better the grazing management on permanent pasture, the less pronounced will all the differences to which I have referred be, but to a greater or less extent they are practically always operative. If matters are as I have pictured them, it may well be that continuous grazing on leys would be more dangerous than continued grazing on permanent pasture, and I half-suspect that it is. So perhaps it all comes back to the length of the "off" periods allowed to leys—and there leys have a decided additional advantage, because, if long "off" periods are necessary in relation to specific organisms, it is a sounder practical proposition to let leys run up into silage crops or short herby hay crops with a view to getting good yields and not hurting the sward than is the case with permanent pasture. To boil the whole thing down to a single issue, I think it comes to this. We agronomists want to be informed by you veterinarians in respect of each of the specific organisms that occasion animal disease and which go through some of their life history on or about sward and the rest in or on the animal, what should be the correct "off" period in grazing management, and what should be the correct period in tillage crops between one ley and the next, in order to scotch disease and botch the life-cycle of the organism.

Having thus passed the baby over to your tender mercies, I can now pass to a discussion of *hill grazings*. The conditions offered to the animals on an open sheep walk are peculiar. The animals are afforded the opportunity of grazing on a wide range of sward types and on a wide range of aspects. When, as long ago as 1912, I first began my work on open grazings and made a detailed survey of a large number of separate sheep walks in Wales, I formed the opinion that an extravagantly high proportion of the vegetation eaten was actually taken from a relatively small percentage of the walk as a whole. It was not until 1937-39 that I was in a position to follow the matter up. In 1937, L. J. Boulet came from Canada to conduct research for a post-graduate degree at Aberystwyth. He studied the movements of sheep on the three separate Cahn Hill walks and on that of a neighbour. Owing to the war, his results, I regret to say, have never been published, but I now quote from the thesis. In all, he marked off with pegs 70 separate one-acre plots, each representative of a particular aspect or a particular type of vegetation. He, of course, got many replicas of aspects and types. He made innumerable counts of the sheep per plot (at all times of the day and frequently

* At the meeting held in the Conway Hall, W.C.1, on March 2nd, 1944.

also at night) and thus recorded for each the intensity of grazing per acre over a period of 15 months. You are to understand that the sheep were free always and at all times to choose their grazing wickets. Here are the results, first for our neighbour's walk (on which no improvements had been conducted) :—

	Sheep per day per acre per annum
Area in *Agrostis* pasture with a little white clover ...	2·9
In Fescue pasture	1·6
„ Fescue-*Nardus*	0·8
„ *Nardusa-Molinia*	0·4
„ Wet *Molinia*	0·3

At the very most, the area in *Agrostis* did not occupy more than 5 per cent. of the total area of the walk, yet it contributed practically 50 per cent. of the grazing days of the flock for the year.

The point I would make is this : that on an unimproved walk the concentration of grazing is, as I had anticipated, highly concentrated on particular patches. That is the first point for the veterinarian to contemplate.

Now let me give you generalised results for the four walks, including our heavily-limed-phosphated and re-seeded patches. I will give you the figures on a percentage basis.

	Concentration of grazing
Manured and re-sown areas, including white clover, perennial ryegrass and cocksfoot	100
Agrostis patches manured only (natural)	48
Fescue-*Agrostis* areas (natural)	33
Fescue-closely-grazed heather (natural)	28
Fescue-*Nardus* (natural)	18
Nardus-Molinia (natural)	7
Wet *Molinia* (natural)	7

The significance of these facts is emphasised when I say that it is very seldom that the *Agrostis* area on any sheep-walk exceeds 5 to 10 per cent., and it is only on the best walks that Fescue areas exceed *Molinia-Nardus* areas. On very many walks *Molinia-Nardus* exceeds 70 per cent. of the whole.

I must give you a few more generalised facts before I draw my conclusions. Although the sheep heavily concentrate and over graze the palatable (and, as Fagan has shown) highly protein-efficient improved areas, they do not totally neglect the rougher areas. They invariably go to the rougher areas in the early morning and late evening—the sheep evidently likes a change of diet—and during or immediately after periods of heavy rain. Further, sheep show a strong preference for southerly aspects. Another interesting point is this : although sheep will graze improved areas to the last blade of grass—and on these they must, necessarily, even by day, urinate and dung comparatively heavily—they never graze their greatly improved —*greatly improved* by extra heavy night urination and dunging—night camps at all heavily. These are the main essentials of Boulet's original—original from all points of view—researches. What do they mean ? First, that every sheep-walk is in very truth a patchwork of areas of highly concentrated grazing, and presumably, therefore, of relatively highly concentrated dunging and urination—and of areas relatively neglected. But that sheep do wander over the whole walk and therefore scatter all over the walk to some extent such germs and organisms as they excrete and also have the opportunity of picking up such organisms as lurk anywhere and everywhere in the walk. However, the major point upon which to insist is that the opportunities for mass infection from organisms living on the vegetation are extraordinarily localised. *Now as this influences sward improvement by manuring and re-seeding*, I argue that since there is excessive localised concentration of grazing on every natural walk, by improving large areas you are reducing ultra-concentration and not the reverse.

I would make two further points : your improved areas in the aggregate must be large enough thoroughly to eliminate over concentration—I would suggest not less than 15 to 20 per cent. of the walk and well orientated as to aspect. It is a fatal mistake to over concentrate on southern aspects, because all aspects can be blizzard swept and a sheep must never be encouraged to face violent weather for succulent food. Not all blizzards come from the north-east nor all from the south-west—you must have improved patches on both aspects. We must note another fact. Your improved patch makes for better soil conditions—it eliminates the mat, puts paid to peat formation and apart altogether from the lime and phosphates added, makes for a more minerally efficient soil. We want to know whether disease organisms, worms and the like, keep body and soul together better on rough vegetation and peaty soils or on improved patches, with their more highly minerally efficient soils, and this quite independently of the concentration of sheep manure. We also, I think, want to know if the concentration of sheep manure is as effectively heavy from the disease point of view on improved and heavily grazed patches as we perhaps think it is. The sheep's parlour manners, as I have said, are such that it excretes most at night, and I would suspect that it most effectively empties itself at night, and this, I should imagine, might have some influence on the excretion of disease organisms. The emptying place is the night camp, and this on open walks the sheep (with a fine judgment) selects for itself. May be, therefore, and if cattle and ponies act as vacuum cleaners for certain disease organisms affecting sheep, one of the chief values of cattle or ponies on a sheep walk is that, *inter alia*, they will graze down the sheeps' night camps. For although the sheep does not heavily graze its own night camp, it by no means completely neglects it, and if such camps are sinks of disease iniquity, then even light grazing might well be serious.

Another point. In the matter of harbouring disease organisms and presenting them to the sheep, what are we to say about the several species ? If white clover is justifiably suspect in the case of any specific organism, then this is an exceedingly serious matter, for white clover is almost the begin-all and end-all of hill improvement, while Boulet's watchings show that the concentration of sheep per area is as near as does not matter a direct function of white clover's contribution to the sward. Of the natural types of hill vegetation, do some types more than others harbour specific organisms—ticks, for example ? If so, what types : what organisms ? With modern crawler-tractors and implements, we agronomists can go almost anywhere and make new swards almost anywhere—so that we would like to be told what types of vegetation you veterinarians regard as most suspect—then, I think, we should have to set out to liquidate such types completely.

One last point. It bears upon the relationship of health to disease—a pretty important relationship, I expect, and it bears on the psychology of the animal, which latter (I have told you I amuse myself by spending a lot of time watching animals) I sincerely and seriously believe opens up a very wide field for profitable research. Boulet's pertinacious watchings proved that the hill sheep likes a change of diet and likes a change twice a day. I expect that is true of every sheep everywhere. I have been keen on mineral efficient herb strips —change of diet—across my lowland ley fields. Such strips are always voraciously grazed. Imagine, if you will, the folded sheep on a single and uniform diet—and apart from deficiencies not met—don't you think the poor sheep might go morbid for want of a change ? —I think so. Psychological unbalance leads to functional unbalance, and I expect functional unbalance leads to susceptibility to attack from pathogenic organisms. Yes, there are wide fields open for research.

Mr. A. J. Hosier (Marlborough, Wilts) : I am not going to add to the many questions asked, but to give some of my experiences.

The war-time policy of ploughing up old grassland is what I have been advocating—and practising—for 20 years. There is no doubt that it is laying the foundation for breeding healthy stock. How could we keep our cattle free from disease under the old method of not ploughing up, and letting our cattle run over the same fields year in and year out ? And to aggravate the position many farmers grazed the same fields and cut for hay the same fields year after year. It is curious that we have discovered that sheep will not thrive if kept in the same pastures continuously and yet we treat our cattle that way.

My experience has been that, whether it is cattle, sheep, pigs, poultry or crops, a change is beneficial. Why our grass should be expected to produce optimum crops on the same land year after year, I cannot understand, because we would not dream of growing, say, wheat continuously. I believe in rotating grass with arable crops and in rotating the various classes of stock. Crops are then more bountiful and stock thrive better.

The above applies to poultry ; is there any wonder that poultry around the farm yard contract diseases ? They are there for everlasting—the surroundings never get a rest. Up to 1939 I kept 150 fold pens of poultry, each containing 25 birds. These folds were moved every day on to fresh ground, and my practice was always to fold over the leys that were to be ploughed up ; each fold covers about one acre per year and approximately 40 cwt. of concentrated manure was deposited on that acre. One unit of 25 birds would consume one ton of grain.

The veterinary profession can only give us palliatives ; if we used our common sense, many stock diseases would be avoided. I remember some years ago my local veterinary surgeon, when coming to calve a heifer, reminding me that he had not been on any of my farms for a twelvemonth—that is not because I am a doctor myself, nor have I purchased any proprietary cattle medicines for years.

The system I have adopted for over 20 years is to rotate practically everything on the farm, *i.e.*, stock, crops and grass—the far-away fields get almost the same chance as those round buildings.

After the last war I determined to decentralise as much as possible and for this purpose I evolved the movable milking shed, the poultry

folding ark system and portable pig huts—sheep I left alone. I wanted to get a large output, I wanted to prevent disease and I wanted to save transport. Hay and silage were made and stacked in the fields where I intended to winter my dairy herds.

The effect of all this was to revolutionise our general dairying practice and for a few years I was "ploughing a lonely furrow." Farmers thought I was mad. I had no-one to go to for advice; every plan and every decision I had to make alone. Gradually a few of the more far-sighted farmers could see "method in my madness." In 1927 I read a paper at the Farmers' Club on "Open-air Dairying" and I remember being congratulated by Professor Stapledon—by letter—above his familiar blue-pencil signature.

The first season I had 60 cows and one movable bail; by 1926 I had five bails and by 1936 I had twelve bails handling 1,000 cows, using twelve men and twelve boys.

With all new leys and cows kept and milked under healthy conditions I decided to produce T.T. milk. Accordingly, in 1928, I had all my herds tuberculin tested and all reactors removed and put into one herd. (All my cows were previously purchased at random from Ireland.)

In order to find out the effect of open-air life on this herd of reactors, I decided to have them tuberculin tested again in two six-monthly periods; at the first six-monthly period 20 per cent. were passed and on the next six-monthly period another 5 per cent. passed the test. This seemed to confirm my opinion that the conditions under which cows were kept were conducive to good health.

There was another interesting experiment conducted on these reactors of which mention might be made. In addition to testing them the county veterinary surgeon sampled the milk from every cow at intervals, both pathologically and microscopically (*i.e.*, guinea-pigs and microscope), in order to find out if any reactor was producing tuberculous milk, and during the whole period of two years no tubercle germ was ever found in the milk—in fact there never has been, to my knowledge, any found in milk produced from my open-air herds.

Some years ago the late Sir Daniel Hall suggested I should breed my own cattle and build up a high-yielding healthy herd of cows. My reply was, that I might spend half a lifetime doing this and suddenly one day one of the dreaded scourges like abortion, mastitis, tuberculosis or foot-and-mouth disease might attack the herd and wipe it out. Sir Daniel said it had happened to him. When the veterinary profession can come to our aid and control these diseases will be time enough for me to embark on building up a herd; until then I shall be content with buying ordinary commercial stock and keep them in the open air on temporary leys.

The above-named cattle diseases will, I am afraid, never be successfully tackled until there is more co-operation between the stock owner and the veterinary profession. Both are to blame—the farmer because many of his methods have been at fault, and the veterinary surgeon because he has not taken steps to educate the farmer.

It is my view that the veterinary profession has not, during the ast 50 years, progressed very far with diseases like abortion, mastitis, tuberculosis and foot-and-mouth—in fact, some of these maladies are more widespread now than they were 50 years ago.

It would be futile to try to work the temporary leys system with cattle until all fields are fenced and watered. I like to have piped supplies to drinking troughs—all ponds should be fenced around to prevent cattle fouling the water. Clean pastures and pure water is the surest foundation for healthy stock. I regard every ploughable field as a potential pasture field, and therefore we have watered every acre on our farms.

Ley Farming and Disease

Dr. E. L. Taylor (Veterinary Laboratory, Ministry of Agriculture): To avoid overcrowding is a well-worn recommendation for the prevention of disease among animals, yet farmers will persist in crowding stock on to pasture, and it is a long time since they were so effectively aided and abetted as they have been in recent years by Sir George Stapledon. His efforts have been very successful indeed in making two blades of grass grow where one grew before, and his work has done much to encourage farmers to keep two sheep, cattle or horses where one was kept before. I am sure that he must have had misgivings at times as to what might be the ultimate effect on the incidence of animal disease and on the progress of the stock-raising industry.

The advice, it must be noticed, however, is not to avoid "crowding" but to avoid "overcrowding," and therein lies the farmer's difficulty, to know how much crowding he can practise without running the risk of disease. Good, progressive agriculture, I take it, means pushing the productivity of the land to the utmost, a point which is often overlooked, so it appears, by those who preach the gospel of back-to-nature for the avoidance of disease. In this crowded country, measures for the prevention of the diseases of stock are only good so long as they fit in with other requirements for our well-being, and if any of the recommendations for disease control mean at the same time the arresting of agricultural development, they are not very good recommendations and can only serve until such time as something better can be found. No, if we are going in for the artificial increase of production we must also develop artificial control of disease. If we have upset the Garden of Eden and intend to substitute an "improved" man-made garden we must do the job properly and see to it that the parasites do not get out of hand. We must do something positive to readjust the ecological balance.

My own particular sphere of interest concerns the diseases of stock caused by some of the larger parasites, and particularly those caused by parasitic helminths. Of these, the diseases of grazing animals caused by strongyloid nematodes, are among the most economically important, and their association with pasture management is a particularly close one. The daily transference of the eggs of the worms, in tens of thousands, hundreds of thousands and even millions from the infected host to the pasture, the hatching of the eggs there, and the development of the larval worms through first and second to the infective third stage is too well known to this audience to require any description. The continual threat of the appearance of red worm disease, husk, or parasitic gastritis is also too well known to veterinary surgeon and stockman alike, and is one of the worst of the worries that are associated with stockfarming. The parasites are always there; they only await suitable conditions of the herbage, of the management of the stock, suitable concentration of young animals on the ground, or a lowered nutritional level of the animals to bring about an increase of parasite population and for disease to result.

A few of these parasites may be carried without any appreciable harm resulting; in fact, since the great majority of animals are always infected the condition of light infestation must be considered as normal. If, however, the parasites become numerous, disease results, so that a consideration of the factors that bring about an increase in the number of parasites should elucidate the development of disease. These factors have been studied and are found to fall naturally into three groups, those influencing the development and persistence of the worm larvae on the ground, those influencing the transference of the larvae to the grazing animals, and those influencing the development of the adult parasites in the host.

Shortage of time will not permit of any detailed account of what is known of the various effects of the nature of the herbage, of ploughing, seeding, folding, mowing, and the movement of stock but it is clear that the influence of these operations over the parasite population may be affected to a considerable degree by a change over from permanent to temporary grass. Some of these factors are quite important but I should like to give a few minutes to a consideration of the still more important factors of *overcrowding* and *nutrition*. It seems to me that the whole crux of the understanding of the development of disease lies in a definition of the term "overcrowding." If only we can arrive at a clear conception of the difference between "crowding" and "overcrowding" we shall understand the development of these parasitic diseases and know whether the improved grassland conditions that have been so ably advocated by Sir George Stapledon will be likely to increase the incidence of parasitic diseases or not.

The state of immunity, or the resistance of mature and maturing animals to the development of strongyloid worms, is very considerable. For some reason the recognition of its importance has been very slow to come about, presumably because of the common occurrence of a few of the parasites in mature animals. Nevertheless it is easy to observe that disease-producing infestations are relatively rare in adults, and we are all familiar with the occurrence of healthy adult animals grazing the same pastures in which the immature members of the flock or herd are dying of helminthic disease. Far from being a weak and indecisive thing, this resistance of healthy mature animals to infestation by parasitic worms is definite and strong and is the outstanding and decisive factor in the maintenance of healthy animals on the crowded, enclosed pastures that have been developed by man ever since his primitive agricultural efforts began. But for this resistance it would be impossible to crowd animals on to the pasture as we do; they would all die of helminthiasis, the infective larvae are there in abundance in our pastures, anything up to 400 per pound of herbage in ordinary grazing conditions, and we must agree that, under those conditions, the only requirement for disease is the presence of suitable susceptible hosts.

The study that has been made of this resistance of mature animals has shown the importance of age, of the rate of infestation and of the nutritional level at which the hosts are maintained. The development of resistance can be retarded by inadequate nutrition or the resistance even of adult animals may be broken down if only the nutritional level is sufficiently depressed. Taking all the evidence into consideration one is led to conclude that the occurrence of these helminthic diseases is all a matter of dosage of infective larvae on the one hand and state of resistance of the host on the other.

Now let us turn for a minute to the matter of effect of animal population on the rate of infestation. Of all factors operating to

increase the infestation process this is the most significant. If we examine the situation in a mathematical way it is found that the tendency is for the rate of infection to increase as the square of the number of animals per unit area.

If we were to go no further than this we should have to conclude that Sir George Stapledon's improvement of the stock-carrying power of pasture is by no means an unmixed blessing. On further consideration, however, we realise that the significant figure is that of the numbers of larvae per unit weight of herbage and that it is not "square yards per animal" but "pounds of grass per animal" that really matters. Not only does this figure reflect the nutrition of the grazing animals, but it also reflects the intake of infective larvae. Nor is this effect of the quantity of herbage in a field a static one which only reduces the intake of larvae so long as there is a large quantity of herbage in the field; the same potent influence is exerted all the time that the herbage is growing rapidly and well. The larvae may be looked on as "diluted" by the quantity of herbage and the resistance of the sheep maintained by its quality and the adequacy of the daily ration.

We still have a lot of work to do at Weybridge on the balance sheet of the ecology of pasture, parasite and grazing animal and I can imagine that some might criticise our conclusions on the grounds that the data on which they are based are inadequate. In this connection I recently read a rather good American "wisecrack" about these same "data," the so-called "scientific facts." The wisecracker said that facts are messy things, which everyone believes except the man who made the experiments; whereas a theory is clear cut and definite, but no one believes it except the man who put it forward. There is also a story of a Russian who was asked to write a description of an elephant and who, never having seen one, nor a picture of one, sat down and evolved it out of his inner cosciousness— and got it right. I do not pretend to that excellence, nor is it necessary so to do since we now have quite a collection of figures to go on, figures that leave no doubt in my mind as to the validity of our conclusions; so, condensing the whole into one phrase that will embrace the effect of the crowding of the animals on pasture, and the effect of the nutritional state on their resistance, it may be concluded that "overcrowding" or disease—which in this instance represent one and the same thing—is a matter of *extent of infestation per unit of nutrition*, or to express it neatly, of *numbers of larvae per calorie*. Of course this figure will vary very considerably with the age and state of resistance of the stock but it conveys as nearly as possible the definition of "overcrowding" in so far as the helminthiases of grazing animals are concerned, and so long as ley farming does not upset that ratio there is not likely to be any wholesale increase in parasitism, and the control of helminth infestation will not thereby become any more difficult than it is at the present time.

(*To be continued*)

"MILK RECORDING IS FUNDAMENTAL"

In its issue of April 25th, the *Farmer and Stock-Breeder*, in the course of an editorial article headed as above, observes: "After a quarter of a century of milk recording our dairy herds were beginning to reflect the benefits which the practice confers when the war led to the closing down of Ministerial support. Better counsels later prevailed, yet the resumption of recording under the Milk Marketing Board was made the more difficult by, and the falling off in yields must also, in some measure, be attributed to, the interruption as well as to the feeding-stuffs position. Happily, the Milk Board is attempting seriously to lay the foundation of accurate recording on a basis of any expansion in production or of any advance in stock improvement. It has occupied itself for nearly a year and a half in the organisation of a practical system which shall, in time, be really national both in name and in character.

"Recording is one of the main factors in any planned improvement of dairy stock. Its extension among newcomers is desirable both from the national and the individual point of view. It is the only means by which the producer can decide whether he is merely keeping the cows or the cows are keeping him. Consequently, a planned campaign to extend the practice, backed by adequate facilities, is a necessary basis for any raising of our yields."

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Food experts, states the *Sunday Express*, are trying to interest the Government in converting the waste yeast from brewing into animal feeding-stuffs. Irish farmers are feeding yeast to poultry and pigs, but it is estimated that food for a million pigs has been wasted in the last four years in this country because farmers have not had the opportunity to use this by-product.

THE VETERINARY RECORD

June 3rd, 1944

THE LOVEDAY REPORT (3)

CHAPTERS 4 and 5 of the Second Report of the Loveday Committee (reprinted below) are naturally so closely interdependent that they should be considered together since they contain between them the Committee's views as to the future powers and status of the R.C.V.S., which it suggests should remain the governing body of the profession, and have additional powers and duties to be "empowered to secure minimum qualification for the licence to practise."

Members of the profession must ask themselves if the changed conditions suggested would in fact have this effect. Will the proposed new council representation weaken the position of the Council as the democratically elected governing body of the profession? Do the proposed powers of the R.C.V.S. corresponding to those of the G.M.C. give the former body absolute power to determine the minimum standard of entry into the profession as stated in paragraph 24 of the report? Is a recommendation that the universities employ practising veterinarians as examiners in clinical subjects sufficient, or should this be made compulsory? What alternative suggests itself? Should teachers act as examiners?

The Committee urges that the essence of the one-portal system is retained by its recommendations, and it is inevitable that the interpretation of this claim should be the most controversial part of the whole report. Many members of the profession are naturally jealous of the slightest encroachment on the powers of the R.C.V.S. and are therefore prepared to oppose stoutly any attempt to weaken our governing body. Do the recommendations of the report in fact tend to this aim or have they found the solution to the difficult problem of giving our teaching schools and students wider contacts, at the same time avoiding the pitfalls of multi-portalism?

Only when this question is answered shall we be able to voice our final opinion on the report.

Veterinary Education in Great Britain

Second Report of the Loveday Committee

(*Continued from page 177*)

CHAPTER IV: THE ROYAL COLLEGE OF VETERINARY SURGEONS AND ITS FUNCTIONS

17. The Royal College of Veterinary Surgeons was established as a body corporate by a Royal Charter of 1844 granted to graduates of the veterinary schools of London and Edinburgh. The charter declared the practice of veterinary medicine to be a profession, and that the members of the college "solely and exclusively of all other persons whomsoever shall be deemed and taken and recognised to be members of the said profession or professors of the said art and shall be individually known and distinguished by the name or title of Veterinary Surgeon." The Charter made provision for the government of the profession, for the election of a council of officers, for the examination of the students of the then existing schools and of such other schools as might in future be affiliated to the Royal College by Royal Sign Manual and for their admission to be members of the Royal College of Veterinary Surgeons.

When the Charter of 1844 was granted, the Council of the R.C.V.S. as therein constituted was faced with a task of no small magnitude. The veterinary schools at London and Edinburgh were keen rivals, one of them, in an effort to increase membership, having considerably lowered the standard of its training and examinations; and the ill

effects of this rivalry coupled with the fact that practitioners were under no disciplinary control gave rise to grave concern over the future of the profession. Sustained efforts on the part of succeeding generations of veterinary surgeons have been necessary to bring order out of the existing disorder, to improve scientific training and to bring the profession under disciplinary control. The R.C.V.S. has during a century of work given devoted service to the improvement of veterinary education and to raising the status of the profession. Of this record the profession is proud and its members not unnaturally regard with some misgiving any attempt to alter the constitution, powers and functions of its governing body. We appreciate this feeling and may say at once that we regard it as essential that the R.C.V.S. should remain the governing body of the profession. Far from diminishing its authority, we propose by an enhancement of its functions that it should be enabled under changed conditions to carry on its work more effectively. We are confident that, so equipped, it will continue to play its important role in the life and government of the profession.

18. The original powers given to the Council have been supplemented from time to time by further Charters. To-day the R.C.V.S., although not responsible for teaching, examines, admits to Membership and Fellowship, gives the licence to practise as a veterinary surgeon, keeps the statutory register, and, as the disciplinary organisation of the profession, can for certain reasons remove names from the register. No one can become a veterinary surgeon except by registering with the R.C.V.S. as a student at an affiliated school, and by passing the examinations of the R.C.V.S. and so obtaining the diploma of membership of that body. The R.C.V.S. is thus the sole body empowered to grant a licence to practise as a veterinary surgeon and its Council is responsible for maintaining both a minimum standard of entry into the profession, and a satisfactory standard of professional conduct.

19. The changed conditions to which we have referred arise from the growing importance of the veterinary profession, the increasing demand for its services, the need for a more intimate contact between veterinary and the allied sciences and the vital importance of research. These considerations have led us to recommend that universities should participate in the training of veterinary students. A body independent of the universities must be empowered to secure a minimum standard of qualification for the licence to practise; and we propose that the R.C.V.S. Council, altered in constitution, should be invested with *additional* duties and functions in order that it may be fully equipped to act in that capacity. We therefore make the following recommendations.

A. In respect of universities authorised by the Privy Council to confer degrees which are registrable qualifications :—

(1) That legislative provision should be made in respect of veterinary education identical *mutatis mutandis* with that contained in sections* 18, 20, 21 and 22 of the Medical Act, 1858 and in sections* 2, 3 (1) to the end of (*a*), 3 (2), 3 (3) and 4 of the Medical Act, 1886 (in so far as the said sections refer to universities) in respect of medical education, the R.C.V.S. Council being given corresponding powers to those of the General Medical Council.

(2) That the Council should be required to place upon the Register of members of the College the names of all graduates in veterinary medicine of these universities upon payment by the graduates of the prescribed registration fee.

(3) That the Council in mutual agreement with a university should inspect the premises and equipment of the university which it uses for veterinary education, and, if these are considered in any case to be inadequate or faulty, should support, if thought desirable, any representations that may be made by the university to the Government Department concerned, and similarly should support representations that may be made by the university with regard to deficiencies in staffing.

B. In respect of veterinary schools not being universities :—

(1) That the Council should be empowered to inspect such schools.

(2) That, should the instruction given in any such school be found insufficient, the Council should have the right to require improvement of the instruction, and if the improvement be not made to report the matter to the Privy Council.

(3) That in respect of premises, equipment and staffing the Council should be empowered to give support, when thought desirable, to representations by the authorities of a school similar to the support given to a university under A (3) above.

20. At present the Council (apart from Eire members) numbers 32, being veterinary surgeons elected by those upon the Register of the R.C.V.S. whether at home or abroad. The association of the universities with veterinary education will necessitate some alteration in the constitution of the Council and we recommend that it shall consist (apart from Eire members) of 33 persons, of whom 17 shall be members of the R.C.V.S. elected as heretofore, 12 shall be members of the R.C.V.S. appointed by the universities and affiliated schools, namely two each appointed by the Universities of Cambridge, Glasgow, Liverpool and Bristol, and one each by the University of Edinburgh, the Royal (Dick) College, the University of London and the Royal Veterinary College†, and four appointed by the Crown who need not be members of the R.C.V.S. Under this arrangement at least 29 out of the 33 proposed members would belong to the veterinary profession.

21. We recommend that the Council of the R.C.V.S. should enlarge its field of selection of examiners by taking power to employ teachers in the schools and members of Council as external examiners for the Diploma.

22. We strongly urge any universities which may be given power to confer registrable degrees to include practising veterinarians among their external examiners in clinical subjects and to consult the Council of the R.C.V.S. in selecting such examiners.

CHAPTER V: THE LICENCE TO PRACTISE—THE R.C.V.S. DIPLOMAS

23. At present the R.C.V.S. is the sole body legally able to grant a licence to practise as a veterinary surgeon, and in order to qualify a student must enter an affiliated veterinary school, register as a student with the Royal College, take a course of study extending over at least five years, and pass (except so far as he may be exempted from) the examinations conducted by the College. On passing the fifth examination he can register as a member of the R.C.V.S., and can thereafter practise as a veterinary surgeon so long as his name is retained on the Register.

A student who wishes to attend a university and take a degree must, even if the degree is a veterinary degree, sit not only the examinations necessary for the particular degree but also some or all of the M.R.C.V.S. examinations. He is therefore compelled to take a dual set of examinations extending over a variable period depending on the exemptions allowed by the R.C.V.S. Hitherto the Royal College has only granted exemption to university graduates or undergraduates from portions of the Diploma examinations of the first three years and no exemption has been allowed from the fourth and fifth professional examinations even when, as in the case of the B.V.Sc. of Liverpool, the degree course covers the whole course of study required for the membership diploma.

24. Many veterinary surgeons consider that the passing of at least the fourth and final examinations of the Royal College is the only satisfactory way of maintaining a minimum standard of entry into the profession. We agree that a sufficient minimum standard must be maintained, but there is always a danger that such a standard may become also a maximum, in which case improvements may not be effected or may be delayed.

In recommending the association of universities with veterinary education our belief is that while the R.C.V.S. would be invested with authority to insist on a minimum standard in the case both of university examinations and of its own examinations for the diploma, the quality of university training and the stimulus given to research would tend to improve the standard. Further, universities may be expected to introduce variety into their teaching and research; and, so long as the maintenance of a sufficient minimum standard is ensured, we see nothing but advantage in variations above that standard.

Acceptance of our recommendations would mean that membership of the Royal College would continue to be the licence to practise, but membership would be open not only to those candidates who had passed all the diploma examinations conducted by the Royal College but also to those who had obtained a registrable degree in veterinary medicine at a university authorised by the Privy Council to grant such a degree.

25. As membership of the R.C.V.S. will remain the only means of entry to the profession, and as the Council of the R.C.V.S. is to have additional powers to ensure a satisfactory standard, the essence of the "one portal system" will be preserved. The question arises whether the R.C.V.S. should cease to hold membership examinations if a university degree becomes a qualification for registration by the College. It may be argued that a body concerned with the maintenance of the minimum standard of examinations held by other

* These sections are quoted in Appendix VI.

† Should the Royal Veterinary College become a School of the University of London, the University would appoint two members and the College would cease to appoint independently, and similarly should the Royal (Dick) College become a part of the University of Edinburgh the University would appoint two members and the College cease to appoint.

bodies should not itself be responsible for the conduct of examinations of its own, and that, if the diploma examinations are continued, then a new body, say a General Veterinary Council, should be set up to supervise the standard of both degree and diploma examinations, to maintain the register and to exercise disciplinary authority. In strict logic this may be so, but in practice we believe that, circumstances being as they are, a better result will be obtained by entrusting the R.C.V.S. not only with the responsibility of conducting the diploma examinations but also with that of ensuring that the standard of other examinations leading to membership does not fall short of that of the diploma examinations.

26. The adoption of our recommendations regarding veterinary degrees will open a broader path for veterinarians who desire to read for higher degrees in their science. We hope that the examination for the Fellowship diploma will continue, and indeed we anticipate that the F.R.C.V.S. will become the outstanding mark of professional distinction.

We trust that the examination held by the R.C.V.S. for a diploma in veterinary state medicine may also be continued, the conduct of this and of the Fellowship examination as well as of the membership examination remaining the responsibility of the Council's Examination Committee which may well continue to be composed of 17 members of the Council elected by the Council.

(To be continued)

CLINICAL COMMUNICATION

Myelogenic Sarcoma

HAMILTON KIRK

A case of acute lameness in a greyhound bitch, 11 years of age, was brought for radiographical diagnosis by Mr. E. von Lustig, M.R.C.V.S., of Hendon.

There was an intense fluctuating swelling just above the near carpus which gave a first impression of bursitis. It was hot, but apparently not painful on palpation. Incidentally, an "animal clinic" employee had "diagnosed" abscess.

The history was that this bitch jumped through a fence and returned home with a bruised leg about six weeks ago. At the end of the first week, the skin had turned from red to black; swelling developed and lameness persisted. Mr. Lustig quite properly thought that a radiograph should precede any operative measure, and the film (here reproduced) shows a rather rare condition in the dog, *viz.*, myelogenic sarcoma of the radius.

It will be observed that the fluid in the swelling is in direct communication with the medulla of the radius, the external wall of which has been entirely eroded.

Myelomata are usually slow in growth and are prone to affect the ends of long bones, particularly of the femur, tibia, humerus or radius; and also the upper jaw. Neighbouring lymphatic glands are not enlarged and metastases do not occur.

In the early days, diagnosis has to be made from rheumatism, chronic osteomyelitis and periosteal sarcoma. X-rays greatly facilitate the diagnosis; in fact, it is doubtful whether a true appreciation of the present condition could have been arrived at without it. The extent of the soft tissue swelling is easily discernible in the illustration.

Obviously, no cure was possible and the animal was forthwith put painlessly to sleep. Although we wished to amputate the diseased carpus for histological examination, the owner would not consent.

Weekly Wisdom

A long education puts you in a strong prison of dogma and gives you one or two tools to break out with.—Letters of G. S. Gordon.

* * * * *

MILK RATIONING TO END GRADUALLY

The Minister of Agriculture, Mr. R. S. Hudson, speaking at a private meeting of West Riding war agriculture committee, said he hoped gradually to dispense with milk rationing. To enable this to be done farmers should increase their milk production by 350,000,000 gallons, and also increase their supplies of beef, while at the same time continuing to increase the amount of land under grain. They must adopt a long-term policy so as to be ready to feed not only our own people but occupied Europe when the war was over.

ABSTRACTS

[I.—The Effect of Chemotherapeutic Agents on the Bovine Mammary Gland: (2) The Effect of Tyrothricin. ANDBERG, W. G., and WEIRETHER, F. J. (1944.) *Amer. J. vet. Res.* **5**. 6.

II.—The Occurrence of *Streptococcus agalactiae* in Colostrum of Heifers under Natural Conditions and Following Artificial Exposure. MILLER, W. T., and HEISHMAN, J. O. (1944.) *Amer. J. vet. Res.* **5**. 55.]

I.—The authors studied the effect of tyrothricin on injection into the apparently normal quarters of four cows. It was infused in an oil mixture and four quarters received a single injection of 40 mg. and six quarters, four injections, totalling 160 mgs. A condition simulating acute mastitis was produced in all cases with reduction in the milk yield lasting even until 126 days after injection.

[In contrast to these results, Little, in 1941, recorded that following the injection of tyrothricin-oil mixture, a mild reaction was produced and that the fore milk was altered only for one or two milkings. This result has also been confirmed by other workers.]

II.—This report furnishes evidence on the controversial question of the extent of infection with *Str. agalactiae* in newly calved heifers. From the colostrum of 77 heifers, 45 of which had been reared in a highly infected herd, the organism was recovered only from one case (1·3 per cent.).

Three quarters of each of five yearling heifers were injected with infected milk or broth culture. Only two of the 15 quarters thus exposed were found to harbour *Str. agalactiae* at parturition, but all quarters were free three months later.

These results show that the udder of the heifer is not very susceptible to infection with *Str. agalactiae*, and that even if it locates in the udder previous to parturition, it is quickly removed in early lactation.

S. J. E.

* * * * *

[Domsiekte or Pregnancy Disease in Sheep. III.—[Experimental.] CLARK, R., GROENEWALD, J. W., and MALAN, J. R. (1943.) **IV.—The Effect of Obesity on the Reaction of Sheep to a Sudden Reduction in Diet.** CLARK, R. (1943.) *Onderstepoort J.* **18**. 263-278.]

III.—In a continuation of earlier studies (see *Vet. Rec.*, April 22, 1944. **56**. 135), attempts were made to treat experimental cases of the disease. Dosage with ½ lb. molasses daily appeared to have some effect in preventing symptoms, but did not allow of normal lambing or of the maintenance of body weight. Treatment with alkalis was ineffective, but purgative treatment (1 mg. lentin subcutaneously, or 120 ml. linseed oil by mouth) was found to relieve ruminal atony and constipation of the large intestine, and appeared to be of some value in field cases of the disease.

A new pathological finding is reported, *viz.*, hypertrophy of the reticulo-endothelial reaction of the lymph nodes associated with the phagocytosis of fats. This reaction was not noted in the spleen.

Non-pregnant ewes subjected to a sudden and drastic reduction in diet did not manifest clinical symptoms, but in some of them the same changes in blood chemistry, and in others the same *post-mortem* findings as in pregnancy toxaemia, were observed.

IV.—In experiments with non-pregnant ewes, it was found that susceptibility to a sudden reduction in diet was much greater in the case of obese animals. In animals in which a fatal acetonaemia did not develop, prolonged semi-starvation was accompanied by a gradual decrease in the circulating lymphocytes but was without effect on the number of neutrophiles.

A. N. W.

* * * * *

[Brilliant Green—Neutral Red—Lactose Agar for Isolation of *S. suipestifer* from Pig Faeces. SLAVIN, G. (1943.) *J. comp. Path.* **53**. 315-322.]

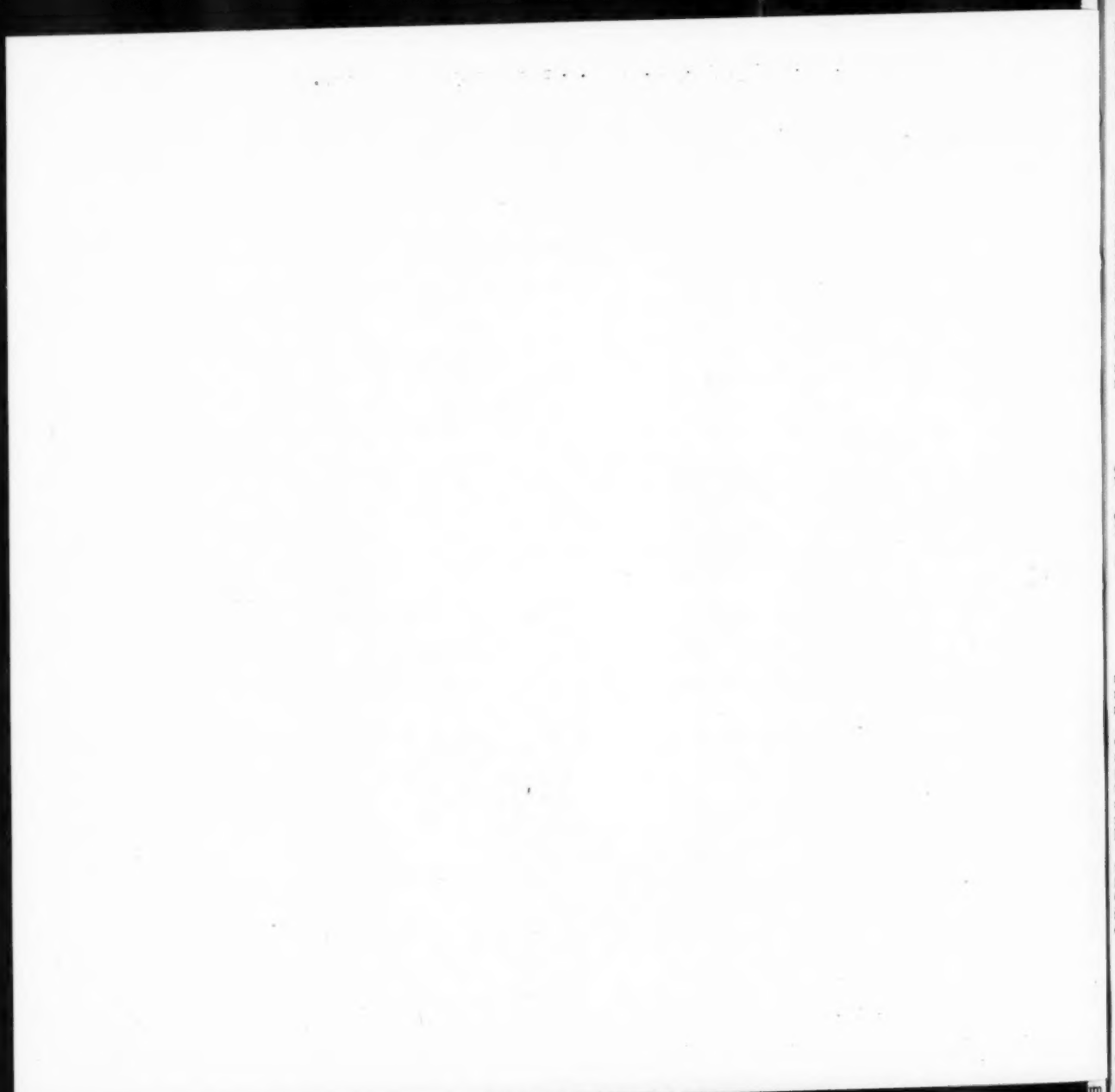
In attempts to isolate *S. suipestifer* from pig faeces Slavin found that the following media gave unsatisfactory results: MacConkey agar plates, Endo agar plates, brilliant green peptone water, brilliant green broth, buffered brilliant green peptone water and Müller's original tetrathionate broth. A medium containing brilliant green, neutral red and lactose in agar was compared with MacConkey and Endo agar by the direct plating of pig faeces artificially infected with 28 Salmonella strains. Twenty-three of the strains were recovered on the brilliant green, neutral red, lactose agar medium and only two strains were obtained on the two latter media.

Full details for the preparation of the medium are given. Each batch of brilliant green must be tested to find the optimum concentration for use, as different batches vary in their powers of inhibition.

D. L. H.

FIG. I.
Antero-posterior aspect of greyhound's carpus.

FIG. II.
Lateral view, showing almost complete erosion of the radius.



QUESTIONS IN PARLIAMENT

Unqualified Veterinary Practice

Sir A. BAILLIE asked the Minister of Agriculture whether the Government proposes to implement the recommendations of the Loveday Committee on Veterinary Education.

Mr. HUDSON: The report of the Loveday Committee is at present being considered by the Government and by the interests concerned. I would, however, add that I hope to announce the constitution of a Government Committee, as recommended by the Loveday Committee, to enquire into the question of unqualified practice.

. . . . .

MILK AND MEAT (GUARANTEED PRICES)

Mr. DAVID ECCLES asked the Minister of Agriculture whether he is yet in a position to make any statement about the future prices of livestock and milk.

Mr. HUDSON: The Government have decided to guarantee to producers of milk, fat cattle, calves, sheep and lambs an assured market for their whole output of milk and meat during the four years up to the summer of 1948 at price levels not less than those at present prevailing, but excluding the special milk bonus paid for the current year. These will be guaranteed minimum prices. The guarantee is given as an integral part of the four-year production plan for these commodities by reason of the long-term nature of these forms of production. It is designed to encourage farmers to produce the increased quantity of milk that is likely to be required in the next four years and to stimulate a revival in the rearing of cattle and sheep for meat production.

. . . . .

FOOT-AND-MOUTH DISEASE

Viscount SUIRDALE asked the Minister of Agriculture how many cases of foot-and-mouth disease were notified in England and Wales between the years 1934-39 and 1939-44, respectively.

Mr. HUDSON: The number of outbreaks of foot-and-mouth disease confirmed in England and Wales during the years 1934 to 1944 was as follows:—

1934—79; 1935—52; 1936—67; 1937—183; 1938—190; 1939—99; 1940—160; 1941—243; 1942—640; 1943—22; 1944 (to date)—19.

"AGRICULTURE AND PARLIAMENT"

In a paper presented by Mr. Vernon Bartlett, M.P., to a recent meeting of the Farmers' Club, attention was drawn to the increasing realisation of the needs of agriculture by M.P.s of all parties and representing all types of constituencies.

Mr. Bartlett pointed out that M.P.s representing agricultural constituencies would always be outnumbered by those from urban areas whose constituents might have no interest in the farmers' problems, but he believed that for the first time for generations those constituents might be encouraged to develop that interest, as a result of the growing understanding of the importance of nutrition and an appreciation of the fact that farm produce can help towards freedom from want.

The impressive level of agreement between all political groups that had published plans for agriculture was a hopeful sign, he said. So also was the formation of the All-Party Agricultural Policy Committee which 140 M.P.s immediately joined. It was encouraging that some 30 of them represented constituencies in the great cities.

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R.C.V.S. ANIMAL MANAGEMENT EXAMINATION

LIST OF SUCCESSFUL CANDIDATES

(*Continued from page* 182)

GLASGOW:

Carmichael, A. M. E.
Crawford, Miss D. H.
Crawford, Miss E. T.
Findlay, W. L.
Kight, D. G. (credit).
Lornie, D.
Malone, J. H.
Martin, W. B.
Murphy, Miss L. I.
McCulloch, J. L. M.
MacInnes, T.
Reid, A. N. D.
Riddet, J. M.
Ross, J.
Semple, M.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

June 6th.—**R.C.V.S. Annual General Meeting,** 10, Red Lion Square, London, W.C.1, 11.30 a.m.
June 6th.—V.V.B.F. Annual General Meeting, 10, Red Lion Square, London, W.C.1, to follow above meeting.
June 7th.—R.C.V.S. Committee Meetings.
June 7th.—Meeting of the North of Scotland Division, N.V.M.A., at Inverness, 2 p.m.
June 8th.—**R.C.V.S. Council Meetings.**
June 9th.—Annual General Meeting, Dumfries and Galloway Division, N.V.M.A., Crown and Mitre Hotel, Carlisle, 2 p.m.
June 14th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.
June 16th.—Annual General Meeting of the Lincolnshire and District Division, N.V.M.A., at Lincoln, 2.30 p.m.
June 23rd.—Annual General Meeting of Sussex Division, N.V.M.A., at Hayworthe Hotel, Haywards Heath, 2.15 p.m.
June 23rd.—Meeting of the Scottish Metropolitan Division, N.V.M.A., in the Royal (Dick) Veterinary College, 2.30 p.m.
June 27th.—R.C.V.S. Examinations begin (provisional date).

* * * * *

Domestic Assistance for Veterinary Surgeons

In view of recent announcements in the Press concerning the release from certain types of war work of some classes of domestic workers for transfer to private households where there is special need, the Association addressed a letter to the Ministry of Labour and National Service enquiring if this transfer would be applicable to the supply of domestic assistance to the households of veterinary surgeons.

In its reply the Ministry stated it had to be explained that, owing to the extreme shortage of women available for domestic work of every kind and the many demands for domestic workers for priority vacancies in hospitals and similar institutions, the supply of domestics within the registered age groups to private households had to be confined to cases of special need. "The standards of need that are applied," proceeded the Ministry, "are those governing the withdrawal of domestic workers of registration age, the general principle in either case being whether domestic help is clearly essential to the household under war-time conditions.

"Each application for domestic assistance is dealt with on its merits, regard being had to the question whether the circumstances of the household show that the lack of full- or part-time domestic help is causing undue hardship. Cases of difficulty are referred to a local Women's Advisory Panel for independent advice as to the extent to which domestic help is considered essential in a particular household.

"The general position in the households of veterinary surgeons, as outlined in the second paragraph of your letter, is fully appreciated and due weight would be given to the circumstances when considering applications from such households for domestic assistance. Although you mention domestic help for doctors' homes, it should be explained that applications for domestic help for doctors' households are dealt with under the same principles and in accordance with the same procedure as an application for the services of a domestic for any other private household.

"It should be added that it is not the policy of the Department to compel women to accept domestic employment in private households, and although our local officers do their best to find suitable domestic help in cases of real need, owing to the present stringency of woman power it is only possible to alleviate hardship in a relatively small number of cases."

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PERSONAL

Births.—BARR.—On May 15th, 1944, at Brunswick Square Nursing Home, to Janet, wife of John Barr, M.R.C.V.S., Crown Square, Penrith—a son.

TAYLOR.—In Edinburgh, on May 25th, 1944, to Edna, wife of D. A. Wilson Taylor, M.R.C.V.S., a son (David).

Marriages.—GLYN—WORTLEY.—On May 6th, 1944, at St. Mary's, Bungay, Michael Glyn, M.R.C.V.S., youngest son of Mr. and Mrs. H. D. Glyn, of Balcombe, Sussex, to Leading Wren Christine Wortley, younger daughter of Major W. H. Wortley, M.R.C.V.S., and Mrs. Wortley, of Bungay, Suffolk.

ROBERTSON—BOULTON.—On March 25th, at Chester, Louis Francis Robertson, M.R.C.V.S., D.V.S.M., to Joan, younger daughter

of the late Mr. J. F. Boulton and Mrs. E. Boulton, Kelvin House, Newton Park, Chester.

* * * * *

Forthcoming Marriage.—The engagement is announced between Arthur Desmond Donnelly, M.R.C.V.S., second son of Andrew A. Donnelly, M.R.C.V.S., and Mrs. Donnelly, Harpur House, Drogheda, Co. Louth, and Margaret Mary (May), younger daughter of Mr. and Mrs. Patrick J. Lynch, 57, St. Helen's Road, Booterstown, Dublin.

* * * * *

R.C.V.S. OBITUARY

Clarke, W. Rogers, Low Row, *via* Richmond, Yorks. Graduated London December 19th, 1895. Died March 12th, 1944. (News received May 26th, 1944.)

* * * * *

Dr. A. S. W. Whitehouse

A Tribute

Whitehouse is dead! To scores of Glasgow graduates, and to many others as well, this news must have occasioned sharp distress even if the late Principal's health had been indifferent for several years past.

Twenty-two years ago Dr. Whitehouse came to Glasgow as Principal of the College and Professor of Anatomy. The College was rapidly recovering from the war years of 1914-18 and plans for rebuilding, involving an estimated expenditure of £30,000, had been prepared. But scarcely a year later the winds of adversity began to whistle around the gables of Garnethill and, in 1925, the College was deprived of its annual grant from the State. Such was the task which the late Principal had to face even if it were with the full backing of the Governors of the College and the solid support of local authorities in the West of Scotland.

Dr. Whitehouse did not lack courage, whether of his convictions or for what he undertook. He held to the wind and had the satisfaction of seeing, inside 15 years, the number of students at Glasgow Veterinary College reach to over 300, more than twice the highest number of entrants previously recorded in the history of the College. To him that was indisputable evidence of the right of Glasgow to retain its Veterinary College.

It was my privilege to serve Principal Whitehouse for over 15 years and, although we did not always see eye to eye, I was aware of the many rare qualities which he possessed. I have mentioned his courage; let me now add independence and a humour that was, at times, impish. Several years ago, at a luncheon with R.C.V.S. examiners, the conversation turned to the Armistice of 1919. "Armistice!" exclaimed the Principal, "There isn't one. I never signed it!"

Dr. Whitehouse was a staunch supporter of the "one-portal" system and intensely loyal to the Royal College of Veterinary Surgeons. After the death of his wife he was sustained greatly by his ambition to become President, R.C.V.S., and, when that was realised two years ago, I do believe that he recognised that the end of his life's work was near. Dr. Whitehouse died as he would have wished—still in harness.

J. W. E.

[Professor Whitehouse was the subject of a biographical article published in our issue of July 11th, 1942, on his accession to the Presidency of the Royal College of Veterinary Surgeons.—*Editor.*]

* * * * *

Funeral

Doctor A. S. W. Whitehouse, the late Principal of Glasgow Veterinary College and Past-President of the Royal College of Veterinary Surgeons, was buried on Friday, May 26th, 1944, at New Kilpatrick Cemetery, Hillfoot, Glasgow.

The esteem in which Doctor Whitehouse was held was shown by a large attendance of mourners. The Chairman of the College Board of Governors, absent on account of illness, was represented by Mr. McCallum, C.A., Glasgow; other members of the Board who attended were Mr. James Bartholomew, Mr. Donald Campbell, and Mr. James Austin, Secretary.

The Royal College of Veterinary Surgeons was represented by Mr. J. W. McIntosh, the National Veterinary Medical Association by Mr. Donald Campbell, the Students' Representative Council by Mr. P. S. Hastie, President, and Mr. Tom Jarratt, Secretary, and the Union of Women Students by Miss Moodie, President. Of the teaching staff at the College there were present Professors Robb, Emslie, Aitken, McLeod, Thomson, O'Sullivan and Abbott, and Messrs. A. H. Robb, J. McIlhone and J. Robertson. Many other members of the profession attended, among them Major D. S. Rabagliati and Messrs. J. F. Taylor, Cathkin, R. E. McGrath, Paisley, R. F. Ross, Bishopbriggs, W. L. Weipers, Glasgow, E. Stewart, Glasgow, and N. M. Mathieson, Larkhall, while a large representation of students followed their old Principal to his final resting place.

A remembrance of the late Doctor's adventurous youth was the presence of Mr. Wilfred Hird, with a beautiful wreath from the American Legion, of which Doctor Whitehouse was a member. Other wreaths in a very impressive tribute were sent by the Board of Governors, the Students' Representative Council, the staff of Glasgow Veterinary College, the College Women's Union, the College Athletic Club, the Royal College of Veterinary Surgeons, the National Veterinary Medical Association, the Principal and Staff of the Royal Veterinary College, and the West of Scotland Division, N.V.M.A.

* * * * *

AGRICULTURE AND MILK

After the war this country will again import large amounts of grain, sugar and other products more cheaply grown abroad; but if we are to raise the standard of nutrition British agriculture will have to provide more of the so-called protective foods—fruit, vegetables, eggs, and especially milk and dairy products. It does not follow that corn-growing and the traditional feeding for beef will fall below pre-war levels; they may be higher. Each occupies an interdependent place in a system of mixed farming without which soil fertility cannot be maintained.

The war-time ploughing of millions of acres of permanent grass, much of very low quality, has produced arable crops; but there are already indications that it may easily lead to soil exhaustion which is being accelerated by the decrease in the number of livestock. Stapledon and Davies[1] nevertheless believe that it can do infinite good if we think in terms of sensible rotations and regrass as we go. Last year—and even more this year—there have been protests against the Ministry of Agriculture's policy of a larger and larger corn acreage, particularly in areas unsuited to corn production. Stapledon and Davies claim that the temporary ley (lea or sown pasture) will yield more animal food than the best permanent grass or any cereal, and will on the lowest estimate be equal to that of roots or kale. Even when these yields are transcribed into units of human food the temporary ley still compares favourably with most arable crops. Ley farming renders milk and corn production complementary, and it would cheapen milk production and make it less dependent on imported food-supplies. Some of the claims made for it may be disputed, but there can be no doubt that the policy of "taking the plough round the farm" is gaining in popularity.

If farmers have reasonable financial security and good technical advice they will no doubt respond to the nutritional needs of the nation, but the difficulties of their tasks and the inducement required should not be under-estimated. At a discussion on milk held by the Nutritional Society some time ago Mr. J. L. Davies defined the three primary requirements of the milk industry as (1) a ten-year plan involving expenditure of £100 million on capital equipment urgently needed; (2) a large measure of control over the diseases of dairy cattle; and (3) an adequate supply of good labour for which a six-day week would be necessary. The risks from disease are greater in dairy farming than in any other branch of livestock farming, and the control of tuberculosis and brucellosis, or even the production of clean milk, requires a degree of supervision unnecessary in other branches. Before the war milk production accounted for over a quarter of the total agricultural output, and milk was twice as important as any other single commodity; but if arable farming and livestock feeding are profitable over an extended period it is possible that fewer and fewer farmers will be interested in milk; as one of them said before the war, "If corn and beef production ever pay again I will gladly go into my dairy and smash every bottle in the place." The same applies to the men who milk the cows, either by machine or hand; there are many who have worked a seven-day week for 52 weeks in the year for many years. Under these conditions standards of cleanliness tend to be low, and it is becoming harder to obtain cowmen—they would rather drive a tractor, work horses, or tend stock which at least do not need milking twice or three times every day.

It is clear that the production of milk of high quality requires increased expenditure of money and effort, and a high standard of labour, all of which imply an increase in the price of milk. On the other hand if the optimum amount of milk is to be drunk the price must be lowered rather than raised. Control of disease, improved management, and particularly increased efficiency in distribution, may keep down the price. But it is not unlikely that the subsidising of milk for priority consumers will have to continue. —*The Lancet*, December 25th, 1943.

(1) Stapledon, Sir G. and Davies, W. Ley Farming. Penguin Special, No. 99. 1942.

A BIOLOGICAL CRITICISM OF EDUCATION

"In a recent address to the Leeds Medical School"—which will not be without appeal to those concerned with the early training of entrants to a profession which calls for first-rate powers of nature observation and for mental alertness, such as the veterinary profession, and who are apprehensive of the effects produced by mere memorisation of the printed word—" Sir John Graham Kerr, F.R.S., M.P. for the Scottish Combined Universities, made some criticisms as a biologist of the Governmental scheme of education. He recalled his own early experience of living for a time among a primitive race of the Gran Chaco in South America and observing the system of education practised among them. In their communal evolution these people had not reached even the stage of cultivating plants or of keeping flocks and herds, but the system of education among them, to sum it up in modern phraseology, consisted simply of training in good citizenship—training to be an efficient, and therefore a happy, member of the community. It relied upon training in observation of natural phenomena, the interpretation of such observation, and the development of the habit of constant mental alertness.

"The fact that education to-day in civilised communities had departed so widely from this original type was due, paradoxically, to one of the most beneficent events in the whole history of civilisation—the invention of the printed book. It was the printed book which brought with it the possibility of mass education. In the age of manuscript education was centred in the religious houses, and spread beyond them only into the circles of the well-to-do. With printing it could be extended to the common people, but the teaching so given was the teaching of authority—namely, pronouncements on subjects of an abstract kind, such as theology, philosophy, mathematics and history—and an inevitable result of the domination of the printed book was the reduction to a position of relative unimportance of training in observation, judgment, and mental alertness, which had formed so important a part of education in the earlier phases of communal evolution. While he would not speak disrespectfully of superficial culture, he was reminded of a remark about an old Clyde steamer, that she was 'held together by the paint.' Did we not rely in these days too much upon the paint of culture to hold civilisation together?

"He believed that there was an urgent call for a far more thorough overhaul of the system of elementary education than was contemplated by those whose interest was centred in improving its administrative machinery. Imprisoned in the schoolroom, the young boy occupied himself no longer with observing and puzzling out the meaning of what he observed, but rather with an uncritical absorption of snippets of information. The memorising of masses of detail of a multiplicity of subjects, such as geography, history, and the vocabularies of foreign languages, was relatively trivial as a means of general mental training. He pleaded for an increased proportion of school time to be devoted to science, or, better still, to instruction in scientific method. He deplored the unfortunate effect of the dominance of the printed book in encouraging the idea that the height of a man's education was to be expressed by his degree of literary culture.

"The all-important function of education, as Sir John Graham Kerr saw it, was to produce effective, and therefore happy, citizens. Success in this depended upon the successful treatment of the individual's heritage of 'biological wealth'—every child born into the world was in the biological sense a little capitalist—by adding to its amount and coining it into a currency with a high exchange value in the particular circumstances in which the individual lived. In his view the primary phase of education should be devoted to the general task of laying the foundations of good citizenship. Health and strength—physical, mental, and moral—powers of observation and the interpretation of what was observed, alertness of mind and body, command of the English language and its correct and clear expression, cleanliness and godliness, personal manners, capacity for team work with its attendant discipline—these were the components of the elementary or primary phase of education, and they provided the foundation upon which must rest the later stages of education in school and workshop, in university and vocational career. Here he emphasised again that technical subjects, which had their place in the workshop, studio, laboratory, or field, must by no means be placed on a lower level than those associated with the study and library."—*Brit. Med. J.*, 1943, Dec. 25th, p. 823.

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MINISTRY OF AGRICULTURE NEWS SERVICE

Delay is Dangerous.—At the first sign of trouble in the dairy herd a farmer should call in his veterinary surgeon: delay is dangerous, for the trouble may spread and become difficult to control. It must be remembered that the wrong treatment may be as serious as if nothing was done and in no circumstances should hormone treatment for infertility in cattle be adopted without veterinary advice. In skilled hands, such treatment may be of value in certain individual animals, but work on this method is still in the experimental stage and cannot be recommended for use by the inexperienced.

Every farmer should take full advantage of the services of his veterinary surgeon even if he is not prepared to accept the dairy cattle diseases control scheme, with its comprehensive facilities for the control of contagious abortion, sterility, mastitis and Johne's disease. The treatments used in the control scheme are those generally accepted as being the most effective. Other methods sometimes advocated cannot be recommended for general application.

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Milk Cooling Importance.—Immediately after it is drawn milk should be cooled to the lowest possible temperature. Cooling should be carried out both in winter and in summer and the ideal method is to pass the milk over the ordinary water-cooler. Where there is insufficient water for using a water-cooler, the churns should be stood in a tank of cold water. Water should come right up to the necks of the churns with an allowance of 40 gallons of water for every 10 gallon churn. After it has been cooled, milk should still be kept in a cool place. If it has to be left at the roadside awaiting collection, some shelter from the sun is highly advisable.

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Views on Ewes.—Will the supply of breeding ewes be sufficient to meet the tremendous future demand that is anticipated? This is a problem that is giving sheep farmers a good deal of trouble at the present moment and was the subject of a recent discussion between three farmers sitting round the microphone.

In particular, what breed was there to take the place of the Scottish Half-Bred (Border-Leicester × Cheviot), a cross that was popular over a large area of the country before the ploughing out of grassland restricted the acreage available for grazing? One suggestion was the Grey Face, the result of mating a Border Leicester ram to Scotch Black Face ewes. Another, and one favoured by all speakers, was the retention for breeding purposes of the ewe lambs obtained from crossing of the Border-Leicester × Cheviot ewe with Suffolk or Dorset Horn rams. The ewes of this cross were prolific and made excellent mothers. Mated with Oxford or Hampshire rams, they produce lambs that can be sold fat from grass or finished in the fold in winter.

Another question lay in the possibility of finding a suitable self-contained breed for grassland conditions, one that could be bred pure. Kerry Hill were mentioned as being a breed most closely approaching a pure-bred grassland sheep, although in the more fertile grass counties they were generally mated to rams of one of the Down breeds, just like the Scottish Half-Bred. Several of the existing lowland breeds are, of course, adaptable to free-range grazing.

A warning against overstocking was given in connection with the management of grassland sheep and emphasis was laid on the advantage, both to sheep and grassland, obtained by mixed grazing.

All who took part in the discussion agreed that if grassland sheep were to be increased in numbers after the war, organisation of the marketing of fat lambs would be essential to prevent prices falling to the low level experienced before the war, when, during July and August, the market was frequently glutted with fat grass lambs.

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Ley Farming: Its Relation to Dairy Herd Management.—As a feed for livestock, the ley—properly used, and converted economically—is the cheapest source of starch and protein equivalent at the farmer's disposal. As an agent for the promotion of soil fertility, the grass sod, intelligently managed, should be regarded as perhaps the most valuable foundation upon which the farmer can build. In terms of actual grass, there is everything to be said for a farming system that substitutes the ley for permanent grass and the case is even stronger if the question is examined from the milk production viewpoint. A well-managed sequence of leys gives grass of high nutritive value over 2 longer grazing season than does permanent grass; and it is the experience of advanced dairy farmers now using the ley system, that more grass is available and milk production improved.

Ley farming, more than any other system, holds a better balance between crop production and grass production, between food for direct human consumption and feed for animals, and at the same time utilises the grass turf to the advantage of both. It renders milk production and corn production complementary and makes it possible to push both forms of production to the utmost, without robbing the land of its fertility. The essence of ley farming is to grow crops and grass—to be at as much pains to use the sod to the best advantage as a manure and the foundation of fertility, as to use the grass to the best advantage as a feed.

Under this system the plough goes round practically the entire farm and the basis of the rotation is the long ley. For this country it is the most productive way of farming, as it offers great scope

for the employment of labour and the control of disease as well as affording more opportunity for profit. The system leads to flexibility both in cropping and in the adaptability of the farmer in suiting his farm production to changing economic conditions.

From the aspect of dairy herd management and milk production, ley swards have four supremely important advantages. They are more palatable than old swards; they give a longer grazing season, they have a higher feeding value, and they ensure a greater immunity against disease.

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Silage Value.—Although thousands of tons of silage were produced last year on farms in this country, far more should be made both to assist in winter feeding of stock and to save ships. A million tons of "first quality" silage provides sufficient feeding value for the production of 100 million gallons of milk and would mean a direct saving of over 30 shiploads of imported cattle food.

When opening a silo, every farmer should ask himself this question—"Is it good enough to replace cake or is it only a substitute for hay?" The answer depends largely on the crop ensiled and the way in which the work has been done. Cake substitute silage can only come from the right crop, cut at the right time and ensiled in the right manner. Such crops are leafy young grass containing no flowering or near flowering heads, clover, lucerne or sanfoin cut at the bud stage. The colour of such silage will be a golden yellow or a lightish brown and it may have a greenish tinge. Smell will be faint and not unpleasant and all the grasses or clovers will be easily recognisable in their original form.

The amount to be fed is affected by the proportion of water the material contains. A simple hand squeezing test will show this. If water can only be obtained by hard pressure, the silage can be fed at 20 lb. a day per gallon of milk; when squeezed out easily at 24 lb.

Should the silage have a rancid smell and be of a dark green colour, it has been improperly made and is underheated, probably through over-treading or too rapid filling when wet. Stock may readily eat such silage and its feeding value may be high, but it is inadvisable to feed it in large quantities, certainly not more than 40 lb. per day to fully grown animals. The material is, however, objectionable to handle and should be fed outside the cowshed to avoid tainting the milk. Silage of a dark brown colour and smelling like caramel or tobacco indicates over-heating through lack of treading. Badly heated silage always means loss of digestibility and food value, and should be regarded purely as maintenance fodder.

Seeds mixtures or good temporary grass cut in the early stages of flowering give a silage of second quality, but it can be used to replace cake and hay, 20 lb. replacing 5 lb. of hay and 1¼ lb. of cake; thus for a 2 gallon cow, 60 lb. of silage, 5 lb. of hay and 1¼ lb. of dairy cake would provide sufficient nourishment. Arable silage, usually cut at a later stage of maturity than that of grass or clover, may suitably replace hay, 22 lb. of this silage being equal in feeding value to 8 lb. of hay.

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Feeding the Young.—Any livestock improvement policy calls for a careful planning of the farm's cropping. Farmers who grow beans could not put them to better use than feeding at the rate of 2 to 3 lb. per head to young stock, specially spring-reared calves during their first winter and to heifers due to calve in the spring. Young cattle will make satisfactory growth on roots and hay, but still better when kale or silage are supplied in addition. By growing and feeding extra kale and silage to cows, it may even be possible to save a little of the concentrates from the cows' rations for feeding to young stock when the kale is finished.

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Improving Shell Texture: Lime and Phosphorus Essential.—Eggs with imperfect shells may lead to egg eating. This is a bad habit that quickly spreads through the whole flock. Bad shells result either from a lack of lime or its presence in a form that cannot be used. Lack of lime is easily remedied by placing limestone grit, cockle shell or old mortar in a small tin or box within easy reach of the birds. The receptacle should be kept full and the birds allowed to help themselves. Sometimes shells are faulty despite the presence of lime. Birds kept indoors, where they obtain no direct sunlight, need cod-liver oil in the diet. Without the vitamin supplied by sunlight or cod-liver oil the lime cannot be assimilated.

The most common cause of faulty shells, however, is a shortage of phosphorus. This mineral is usually supplied in the bone of meat meal and fish meal, but these "body builders" are sometimes replaced by meals made from soya beans and earth nuts. Small poultry keepers who are troubled with faulty shells should add small amounts of bone to the daily ration. One teaspoonful per day to each two birds is quite enough. The best source is fish offal reduced to pulp in a pressure cooker. But any treatment that will break the bone into particles small enough to be eaten will do, though cooking is essential unless fresh supplies are available daily.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

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THE LOVEDAY REPORT

Sir,—Whilst carefully considering the Loveday Report we find the statement that there was no unemployment during the years 1940, 1941 and 1942 in the veterinary profession, and we are interested to know how the Committee arrived at this conclusion.

Qualifying, as we did, during those years, we had an excellent opportunity of observing the great difficulties which we and our fellow graduates experienced in obtaining employment. Whilst we were fortunate enough to be employed in the profession, there were among our friends many who were forced to seek a temporary livelihood as chauffeurs, farm labourers, air raid wardens, etc., and there were others who joined the Armed Forces. So overcrowded was the profession that many graduates were prepared to work as assistants for little more than their keep. We are sure that these facts will be thoroughly endorsed by all who sought or offered employment at that time.

Although the war may have largely contributed to this unemployment, we consider that this statement by the Committee is grossly inaccurate and fail to understand how they could have reached this conclusion. If this statement is representative of their accuracy, then their basis for considering the future increased requirements of the profession may be equally incorrect.

Unless the Committee can give some sound reason for this statement, we feel it is the duty of every veterinary surgeon to bring the true picture before the legislators.

We are,
Yours faithfully,
K. M. Smith,
H. Williams Smith.

35, Upper Garth Road,
Bangor, N. Wales.
May 22nd, 1944.

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Mr. G. A. Tomlin, M.R.C.V.S., writes: "Referring to the paragraph on page 177 of the current issue, in the pig boom after the last war a boar from the Dry Drayton herd of Large Blacks realised four figures and some gilts sold for nearly that sum."

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange•	Sheep Scab	Swine Fever
April 16th to 30th, 1944 ...	11	—	—	—	33
Corresponding period in—					
1943 ...	10	—	—	2	20
1942 ...	19	—	—	7	18
1941 ...	21	14	—	15	40
Total Jan. 1st to Apr. 30, 1944	86	19	5	58	214
Corresponding period in—					
1943 ...	118	10	5	94	188
1942 ...	114	11	26	105	141
1941 ...	184	209	7	114	639

NOTE.—The figures for the current year are approximate only.
• Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at April 30th, 1944, was as follows:—

England	Wales	Scotland	Total (Great Britain)
4,060	8,572	3,606	16,238